REMARKS

A Request for Continued Examination has been filed herewith. Therefore, Applicant requests that the Examiner withdraw the final rejection and consider the Response. After amending the claims as set forth above, claims 100-115 are now pending in this application.

The present invention concerns a method for identifying targets for antibacterial agents using bacteriohage polypeptides that inhibits bacterial growth. This is accomplished by identifying a bacterial protein with which the bacteriophage polypeptide interacts.

Applicant appreciates the Interview granted by the Examiner and by Supervisor Low on August 8, 2002.

Rejections under 35 USC §112, paragraph 1

The Examiner maintained the rejections of claim 100-115 under 35 USC §112, first paragraph as allegedly lacking enablement.

As was discussed during the Interview, the specification describes how to determine whether a bacteriophage polypeptide or fragment thereof inhibits the growth of a bacterium. As was discussed during the Interview, the methods for determining whether a bacteriophage protein inhibits bacterial growth can also be used to determine whether a fragment of that bacteriophage protein retains the bacteria-inhibiting property. Thus, in accordance with Supervisor Low's suggestion, claim 102 was amended to expressly indicate that the fragment retains the bacteria-inhibiting property possessed by the bacteriophage polypeptide. Thus, the interaction of such a fragment with a bacterial protein indicates that the bacterial protein is a target of the bacteriophage polypeptide and therefore a target for antibacterial agents. This same property is already contained in claim 115, which specifies that the "bacteriophage polypeptide or fragment thereof inhibits bacterial growth."

Also discussed in the Interview was the fact that the present claimed methods have been used to identify a number of different bacterial target proteins. In addition to the example provided in the prior amendment (filed June 12, 2002), where Applicant pointed out to the Examiner that the present claimed methods had, in fact been used to identify a particular bacterial target as described in U.S. Patent 6,376,652, published examples are also described in PCT publications. For example, WO 02/50106 (PCT application PCT/CA01/01847), WO 02/50545 (PCT application PCT/CA01/01848), and WO 02/44718 (PCT application PCT/CA01/01754) describe the identification of 3 different targets using 3 different inhibitory bacteriophage proteins. (Copies of the cited PCT publications are enclosed for the Examiner's convenience.) These examples demonstrate that the present methods have been successfully applied, and confirm that the inclusion of specific examples applying the claimed methods is not necessary for one of ordinary skill in the art to carry out the claimed invention.

The Examiner also asserted that Applicant had not addressed the rejection of claims 101-105 and 107-115 in the prior Amendment.

In connection with claim 101, the Examiner asserted that the specification does not provide specific assay conditions, and that it is unclear how affinity chromatography identifies a protein. Applicant respectfully traverses this rejection. With respect to specific assay conditions, one of ordinary skill in the art recognizes that assay conditions will vary for different binding pairs. Therefore, it is not possible to specify particular assay conditions in a generally applicable claim. Further, one of ordinary skill in the art can determine appropriate assay conditions empirically and use those conditions in carrying out the affinity chromatography. In connection with identification of a protein, Applicant notes that determining the target comprises "identifying at least one bacterial protein which binds to said bacteriophage polypeptide using affinity chromatograph." Thus, the claim specified that the bound protein is identified, not that the identification is accomplished by the binding in the affinity chromatography. One of ordinary skill in the art is familiar with methods for identifying proteins, e.g., peptide sequencing as

indicated in the specification. Thus, the "identifying" specified in the claims does not need to be laid out in detail as one of ordinary skill can identify proteins by conventional means.

With respect to claims 102-105 and 115, the Examiner stated that it would require undue experimentation to make and use the claimed protein fragments. However, as was discussed in the Interview, methods for making fragments of known proteins are readily carried out using conventional molecular biology methods. Further, as discussed above, binding and inhibitory activity assays with fragments can be carried out using the same techniques described for full-length inhibitory bacteriophage polypeptides. Thus, fragments can be constructed and tested for inhibitory and/or binding activity without undue experimentation. Fragments so identified can then be used to detect binding to bacterial proteins in the same way that full-length bacteriophage proteins are used.

Similarly, the Examiner asserted that claim 114 lacked enablement for the identification of fragments of bacterial target proteins that bind to the inhibitory bacteriophage proteins. Again as was discussed in the Interview, once a bacterial target protein is identified, fragments can be constructed using convention molecular biological and/or proteolytic techniques, and the fragments can be tested for binding to the inhibitory bacteriophage protein in the same way the full-length bacterial protein is tested. Thus, the identification of bacterial protein fragments that retain binding to the corresponding inhibitory bacteriophage proteins does not involve undue experimentation.

Still further, the Examiner asserted that the Specification does not enable the use of a plurality of bacteriophage polypeptides, plurality of bacterial targets, or plurality of bacteria, as specified in claims 107-113. Applicant respectfully traverses these rejections. As discussed above, the cited PCT applications and the '652 patent demonstrate that the claimed methods have been carried out for a plurality of different inhibitory bacteriophage polypeptides, resulting in the identification of a plurality of corresponding bacterial target proteins. In addition, the Examiner has not provided any basis to believe that the claimed methods could not also be applied to bacteria other than *Staphylococcus aureus*. Indeed, one of ordinary skill in the art will recognize

that molecular biology and culturing techniques are available for many different bacteria. Examples include, Enterococcus sp., Pseudomonas sp., E. coli, Bacillus sp., and others. Thus, the present invention can be applied to other bacteria. In addition, as discussed in the specification, testing of inhibitory bacteriophage proteins can be carried out in related bacterial species, *e.g.*, when the normal host species for the particular bacteriophage is difficult to culture. A target in the host species can then be identified by identifying the host protein that is homologous to the target protein identified in the related species. Thus, contrary to the Examiner's assertion, the use of a plurality of different inhibitory bacteriophage polypeptides, bacterial target proteins, or bacteria does not involve undue experimentation.

In view of the discussion above and the exemplification shown in the cited PCT applications and the '652 patent previously provided, Applicant respectfully submits that the present claims are properly enabled, and requests that the Examiner reconsider and withdraw the outstanding rejections.

Applicant believes that the present application is now in condition for allowance, and respectfully requests a notice to that effect.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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By _____

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**MARKED UP VERSION OF AMENDED CLAIM SHOWING CHANGES MADE**

102. (Twice Amended) The method of claim 100, wherein said determining comprises identifying at least one bacterial protein which binds to an active fragment of said bacteriophage polypeptide, wherein said active fragment retains the bacteria-inhibiting property of said bacteriophage polypeptide.